

## INFORMATION SHEET

R5-2008-\_\_\_\_\_  
FRESNO COUNTY SERVICE AREA NO. 34  
MILLERTON NEW TOWN WWTF  
FRESNO COUNTY

### **Background**

Fresno County Service Area No. 34 (hereafter Discharger or Fresno CSA # 34) was formed in 1986 to operate and maintain public utilities for the planned Millerton New Town development. When completed, Millerton New Town will comprise approximately 2,200 acres, with about 3,400 homes and related commercial uses and recreational developments on Millerton Road east of Friant.

The existing secondary wastewater treatment facility (WWTF) provides sewerage service for about 80 homes in the Brighton Crest development. The existing secondary WWTF has a constructed capacity of 0.056 million gallons per day (mgd) and consists of a septic tank effluent pumping (STEP) system, recirculating sand filter, and lined evaporation ponds.

The WWTF for the Millerton New Town area south of Millerton Road is currently regulated by Waste Discharge Requirements (WDRs) Order No. 02-193, which was adopted in October 2002. Order No. 02-193 provides for the expansion of the existing secondary WWTF on an interim basis until a tertiary WWTF is constructed. According to the plans, the tertiary WWTF will be constructed in phases to provide sufficient capacity as the community grows. Construction on the first phase of the tertiary WWTF (Phase 1) with a capacity of 0.2 million gallons per day (mgd) has been completed. However, it will not be put into operation until the infrastructure for the water recycling system is complete and sufficient flows to the treatment plant warrant operation of the tertiary treatment system.

In August 2007, the Discharger submitted a Report of Waste Discharge (RWD) to modify its existing Order to include the area north of Millerton Road that lies within the boundary of Fresno CSA # 34, and allow for the use of recycled water for fire protection and irrigation of residential lots. The Discharger also submitted a Master Reclamation Permit application to regulate the distribution of recycled water under Fresno CSA #34 on land owned by individuals within Millerton New Town.

### **Solids and Biosolids Disposal**

The Discharger currently disposes of sludge at the Fresno County landfill and will continue to do so until the WWTF reaches 0.056 mgd. Once the tertiary WWTF goes online, wasted sludge will be pumped to an aerated sludge storage tank for digestion and initial thickening and trucked off-site for disposal at an approved receiving facility. Decant water from the sludge storage tanks will be returned to the treatment system at the headworks. The RWD indicates that in the future, a sludge dewatering unit, such as a centrifuge, screw, or belt press will be added when the volume of sludge increases sufficiently to justify the capital cost and additional labor.

**Groundwater Conditions**

Regional groundwater is contained in fractured bedrock and to a lesser extent in alluvial/weathered bedrock deposits. Groundwater typically flows northeast to southwest. Depth to water is variable, with shallow groundwater encountered at depths less than 10 feet below grade on portions of the Use Area. Two monitoring wells were installed in the vicinity of the existing effluent storage ponds. Based on data collected, groundwater in the area was generally of good quality, except for nitrates with average EC, chloride, and nitrate as nitrogen concentrations of 300 µmhos/cm, 15 mg/L and 12 mg/L, respectively. The average nitrate concentration at 12 mg/L exceeds the primary maximum contaminant level (MCL) for nitrate as nitrogen of 10 mg/L.

Due to the low volume of the initial stage of the WWTF, and the fact that the effluent storage ponds were lined the WWTF would not appear to be the source of the nitrate in groundwater. With replacement of the existing pond liner with a new high-density polyethylene liner with a permeability less than 10<sup>-7</sup> cm/sec and application of recycled water at agronomic rates, further degradation of groundwater for nitrates is not expected.

Source water for the majority of the development at Millerton New Town is and will be surface water from Millerton Lake. For Marina Estates, source water will be from groundwater provided by a community supply well:

<u>Constituent/Parameter</u>	<u>Units</u>	<u>Millerton New Town Potable Water Supply</u>	<u>Marina Estates Well Water</u>
EC	µmhos/cm	58	250
Chloride	mg/L	4.5	23
Sodium	mg/L	8.7	50
Total Dissolved Solids	mg/L	52	150
Nitrate (as Nitrogen)	mg/L	- - -	ND

ND = Not detected

**Compliance History**

The Discharger submits monthly self-monitoring reports (SMRs) in compliance with the Monitoring and Reporting Program (MRP). Since the tertiary WWTF is not in operation, the Discharger is following the old MRP for Order No. 91-068 instead of the MRP attached to its current Order (02-0193). Effluent quality from the existing re-circulating gravel sand filtration system is well within the effluent limits for BOD, TSS and EC prescribed in Order No. 02-0193, with average BOD and TSS concentrations of 5.1 mg/L and <1 mL/L, respectively and an average EC of 452 umhos/cm.

The discharge is within the limits established in the current WDRs for BOD, TSS, and EC. Additional limits for total coliform, turbidity, and chlorine residual are not monitored for since the tertiary WWTF is not in operation. Groundwater monitoring is not required in current or proposed WDRs.

### **Basin Plan, Beneficial Uses, and Regulatory Considerations**

Millerton New Town and the WWTF are in the San Joaquin Basin. The Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition, (hereafter Basin Plan) designates beneficial uses, establishes water quality objectives, contains implementation plans and policies for protecting waters of the basin, and incorporates by reference plans and policies adopted by the State Board.

One of the greatest long-term problems facing California's groundwater is increasing salinity. The Tulare Lake Basin Plan's salt management requirements have been successfully implemented for several decades. Widespread and long-term compliance with these requirements justify them as appropriate best practicable control measures for salinity applicable to discharges in the Sacramento River and San Joaquin River Basins. The Regional Water Board encourages proactive management of waste streams by dischargers to control addition of salt through use, and has established an incremental electrical conductivity (EC) limitation of 500  $\mu\text{mhos/cm}$  as the measure of the maximum permissible addition of salt constituents through use. A more restrictive limitation on salt constituents added through use is appropriate where necessary to assure compliance with a groundwater limitation for any constituent established by the Regional Water Board.

Land use in the vicinity is primarily residential, recreational, and rangeland. The rockiness of the soil, the low to moderate water holding capacity, and limited water available for irrigation makes this area unsuitable for cultivation for agriculture. Because of the low potential for growing salt sensitive crops, an EC limit in groundwater of 900  $\mu\text{mhos/cm}$ , based on Title 22 Table 64449 B, which establishes recommended, upper, and short term ranges for EC of 900 and 1,600  $\mu\text{mhos/cm}$  for drinking water is appropriate to protect beneficial uses of underlying groundwater.

### **Antidegradation**

The antidegradation directives of State Water Board Resolution No. 68-16, "Statement of Policy With Respect to Maintaining High Quality Waters in California," or "Antidegradation Policy" require that waters of the State that are better in quality than established water quality objectives be maintained "consistent with the maximum benefit to the people of the State." Waters can be of high quality for some constituents or beneficial uses and not others. Policy and procedures for complying with this directive are set forth in the Basin Plan.

The technology, energy, water recycling, and waste management advantages of municipal utility service far exceed any benefits derived from a community otherwise reliant on numerous concentrated individual wastewater systems. Degradation of groundwater by some of the typical waste constituents released with discharge from a municipal wastewater utility after effective source control, treatment, and control is consistent with maximum benefit to the people of the State, provided the terms of the Basin Plan are met. Constituents of concern that have the potential to degrade groundwater include, in part, nutrients and salts. However, the discharge will likely not degrade the beneficial uses of groundwater because:

- a. For nitrogen, this Order sets a narrative nitrogen limit requiring that the effluent be applied at agronomic rates reflecting the seasonal hydraulic and nutrient requirements of the Use Area. With storage in lined ponds and application at agronomic rates, no degradation of groundwater for nitrates is expected to occur.
- b. For salinity, this Order sets an effluent limitation for EC of 550  $\mu\text{mhos/cm}$ , which is consistent with the Tulare Lake Basin Plan's limit of 500  $\mu\text{mhos/cm}$  plus source in accordance with the 2007 Salinity Guidance, which reasoned that the numerical limits in the Tulare Lake Basin Plan, for municipal discharges are applicable as best practicable treatment or control (BPTC), even if the discharge is not conducted in the Tulare Lake Basin.

### **Treatment Technology and Control**

The Discharger provides treatment and control of the discharge that incorporates:

- a. alarm and automatic flow diversion systems to prevent system bypass or overflow;
- b. tertiary treatment
- c. lined effluent storage ponds;
- d. disinfection of treated effluent;
- e. appropriate biosolids storage and disposal practices;
- f. an operation and maintenance (O&M) manual; and
- g. certified operators to insure proper operation and maintenance.

### **Title 27**

Title 27, CCR, section 20005 et seq. (Title 27) contains regulations to address certain discharges to land. Title 27 establishes a waste classification system, specifies siting and construction standards for full containment of classified waste, requires extensive monitoring of groundwater and the unsaturated zone for any indication of failure of containment, and specifies closure and post-closure maintenance requirements. Generally, no degradation of groundwater quality by any waste constituent in a classified waste is acceptable under Title 27 regulations.

Discharges of domestic sewage and treated effluent can be treated and controlled to a degree that will not result in unreasonable degradation of groundwater. For this reason, they have been conditionally exempted from Title 27. Treatment and storage facilities for sludge that are part of the WWTF are considered exempt from Title 27 under section 20090(a), provided that the facilities not result in a violation of any water quality objective. However, residual sludge (for the purposes of the proposed Order, sludge that will not be subjected to further treatment by the WWTF) is not exempt from Title 27. Solid waste (e.g., grit and screenings) that results from treatment of domestic sewage and industrial waste also is not exempt from Title 27. This residual sludge and solid waste are subject to the provisions of Title 27.

Accordingly, the municipal discharge of effluent and the operation of treatment or storage facilities associated with a municipal wastewater treatment plant can be allowed without requiring compliance with Title 27, but only if resulting degradation of groundwater is in accordance with the Basin Plan.

#### **CEQA**

On 18 December 1984, Fresno County, in accordance with the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000, et, seq.) and the State CEQA guidelines (Title 14, Division 6, California Code of Regulations, as amended), certified an Environmental Impact Report (EIR) and approved the Millerton Specific Plan. The EIR was amended in 1999, 2000, and 2004 to include additional areas within the within the Millerton Specific Plan area. The EIR determined that potential impacts to water quality relative to the WWTF and the use of recycled water would be reduced to less that significant given the mitigation measures adopted as part of the Millerton Specific Plan on 20 April 1999.

Mitigation Measures related to water quality include:

- a.) All developments that occur within the Specific Plan area must utilize a community sewer system with effluent treated to tertiary level;
- b.) Reliability and design requirements for the treatment process must adhere to established engineering standards for Department of Public Health (DPH) criteria;
- c.) To the greatest extent possible, reclaimed water shall be reused for irrigation of golf courses and other landscaped areas; and
- d.) Areas for use of reclaimed water shall be constructed to allow for landscaping and golf course use and protection of wetlands.

The Regional Water Board reviewed and considered the EIR prepared by the Discharger. This Order contains requirements that will mitigate or avoid environmental effects on water quality.

## **Proposed Order Terms and Conditions**

### **Discharge Prohibitions, Specifications and Provisions**

The proposed Order prohibits discharge to surface waters and drainage courses and cross-connection between potable water and well water piping with recycled water piping.

The proposed Order sets a monthly average daily flow limit of 0.056 mgd, with effluent limits for BOD<sub>5</sub> and TSS of 40 mg/L monthly average and 80 mg/L daily maximum until the new tertiary WWTF becomes operational.

The proposed Order sets effluent limits for the new tertiary WWTF for BOD<sub>5</sub> and TSS of 10 mg/L monthly average and 20 mg/L daily maximum, which are consistent with the effluent quality necessary to meet tertiary standards for filtration and disinfection. The proposed Order sets a monthly average daily flow limit of 0.2 mgd for Phase 1 of the tertiary WWTF with flow increases up to 0.5 mgd and 1.07 mgd upon completion of additional phases and certification that the Discharger has sufficient treatment, storage, and disposal capacity to comply with the terms and conditions of this Order.

The proposed Order establishes an effluent limitation for EC of 550 µmhos/cm. This is an increase over the existing limit of 400 µmhos/cm plus source water, or a maximum of 450 µmhos/cm, established in the existing WDRs (Order No. 02-193), which the discharger has been able to meet. The development's supply water is from two sources: surface water with a very low EC (about 50 umhos/cm) and groundwater, which has a higher EC (about 250 umhos/cm). Right now, the discharger uses only surface water, but could have difficulty meeting the current EC limit using the higher EC source water. Further, all wastewater is currently from homes, but other uses (e.g., a restaurant, school) are planned, which could raise the EC. Although the WWTF is in the San Joaquin River Basin, the proposed limit is consistent with the Tulare Lake Basin Plan's limit of 500 µmhos/cm plus source, which the 2007 Salinity Guidance reasoned is applicable as BPTC, even if the discharge is not conducted in the Tulare Lake Basin. The proposed Order includes a mechanism to re-open the Order to evaluate the EC limit in the event the Discharger provides sufficient evidence to demonstrate that exceedence of the EC limit is the result of an increase of the source water EC (e.g, increased use of groundwater).

Discharge specifications regarding dissolved oxygen and freeboard are consistent with Regional Water Board policy for the prevention of nuisance conditions, and are applied to all such facilities.

The proposed Order prescribes groundwater limitations that implement water quality objectives for groundwater from the Basin Plan. The limitations require that the discharge not cause or contribute to exceedances of these objectives or natural background water quality, whichever is greatest.

The Order recognizes that the effluent will be stored in lined ponds and requires the effluent to be applied to the Use Area at reasonable agronomic rates for nutrient and hydraulic loading. In order to protect public health and safety, the proposed Order requires the Discharger to comply with the provisions of Title 22 and to implement best management practices with respect to recycled water application.

The proposed Order includes a provisions requiring the Discharger to submit an updated Title 22 Engineering Report and Operations and Maintenance (O&M) plan, along with recorded covenants for lands dedicated for irrigation of recycled water to ensure the unrestricted availability of land for disposal of effluent prior to initiation of recycling operations or increasing flows over the specified permitted limit.

### **Monitoring Requirements**

Section 13267 of the CWC authorizes the Regional Water Board to require monitoring and technical reports as necessary to investigate the impact of a waste discharge on waters of the state. In recent years there has been increased emphasis on obtaining all necessary information, assuring the information is timely as well as representative and accurate, and thereby improving accountability of any discharger for meeting the conditions of discharge. Section 13268 of the CWC authorizes assessment civil administrative liability where appropriate.

The proposed Order includes effluent monitoring and supply water monitoring requirements. In order to adequately characterize wastewater, the Discharger is required to monitor for BOD<sub>5</sub>, pH, EC, TDS, nitrogen, and other constituents. Use Area monitoring for the recycling operation is handled under a separate Master Reclamation Permit [Order No. R5-2008-\\_\\_\\_\\_\\_](#).

### **Reopener**

The conditions of discharge in the proposed Order were developed based on currently available technical information and applicable water quality laws, regulations, policies, and plans, and are intended to assure conformance with them. It may be appropriate to reopen the Order if applicable laws and regulations change.